

# Chapter 2: The Project Management and Information Technology Context

Information Technology Project Management, Ninth Edition

Note: See the text itself for full citations.

# Learning Objectives (1 of 2)

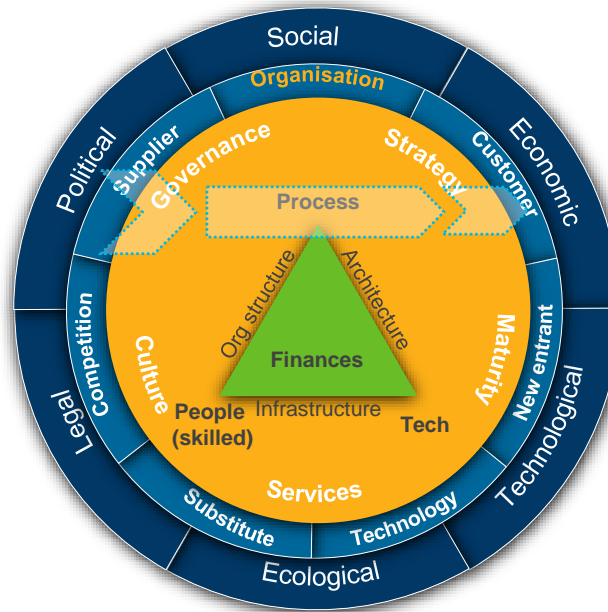
- Define the **systems view of project management** and how it applies to information technology (IT) projects
- Summarize **organizations**, including the **four frames**, **organizational structures**, and **organizational culture**
- Explain why stakeholder management and **top management commitment** are **critical for a project's success**

# Learning Objectives (2 of 2)

- Distinguish between **project and product life cycles**
- Discuss the **unique attributes** and diverse nature of IT projects
- Summarize **recent trends** affecting IT project management, including globalization, outsourcing, virtual teams, and agile project management

# A Systems View of Project Management

- Projects must **operate in a broad organizational environment**
- Project managers **need to use systems thinking**:
  - Taking a holistic view of carrying out projects within the context of the organization



# What Is a Systems Approach?

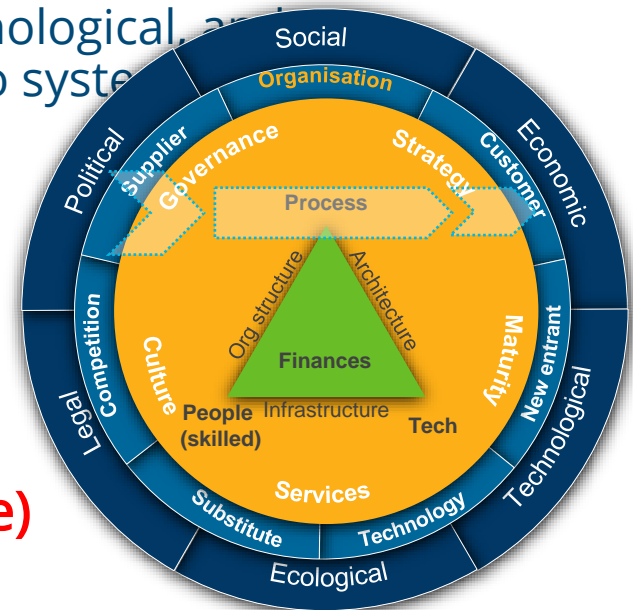
- A systems approach emerged in the **1950s** to describe a holistic and analytical approach to management and problem solving
  - Three parts include:
    - **Systems philosophy**: an overall model for thinking about things as systems
    - **Systems analysis**: problem-solving approach
    - **Systems management**: address business, technological, and organizational issues before making changes to systems
- Challenge (**As Is**)

Context

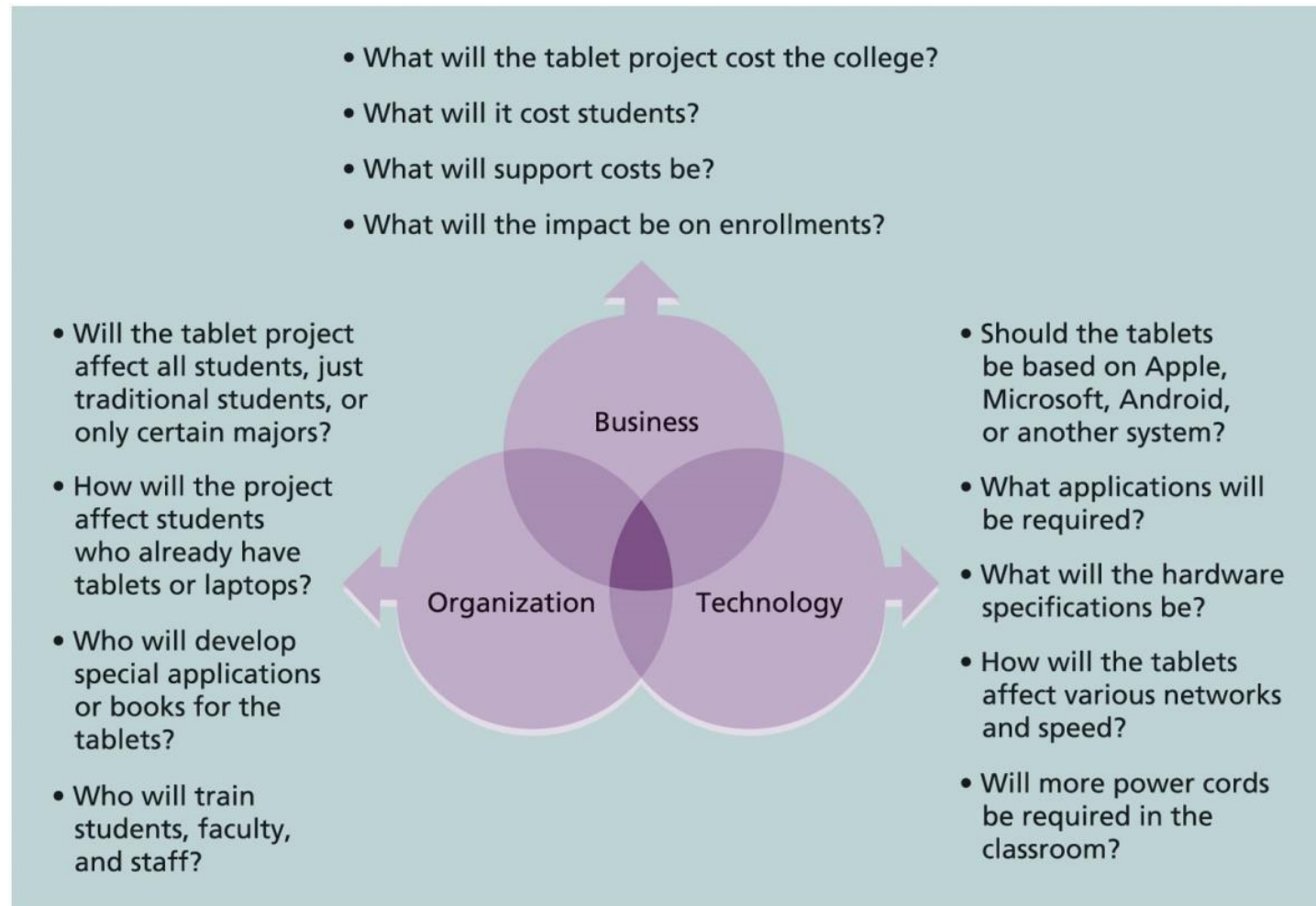
Concepts – CSF's

Construct

Content for Capacity (**To Be**)



# The Three-Sphere Model for Systems Management



**FIGURE 2-1** Three-Sphere model for systems management

# Understanding Organizations

- Systems approach requires that project managers **always view their projects in the context of the larger organization**
- **Organizational issues are often the most difficult part** of working on and managing projects
- Important for project managers to **develop a better understanding of people as well as organizations**
  - To improve the success rate of IT projects



# The Four Frames of Organizations

Structure	Competence & Capabilities
<b>Structural frame:</b> Roles and responsibilities, coordination, and control. Organizational charts help describe this frame.	<b>Human resources frame:</b> Providing harmony between needs of the organization and needs of people.
<b>Political frame:</b> Coalitions composed of varied individuals and interest groups. Conflict and power are key issues.	<b>Symbolic frame:</b> Symbols and meanings related to events. Culture, language, traditions, and image are all parts of this frame.

**Politics** – old boys network

**Culture**

Source: Bolman and Deal.

**FIGURE 2-2** Perspectives on organizations<sup>2</sup>

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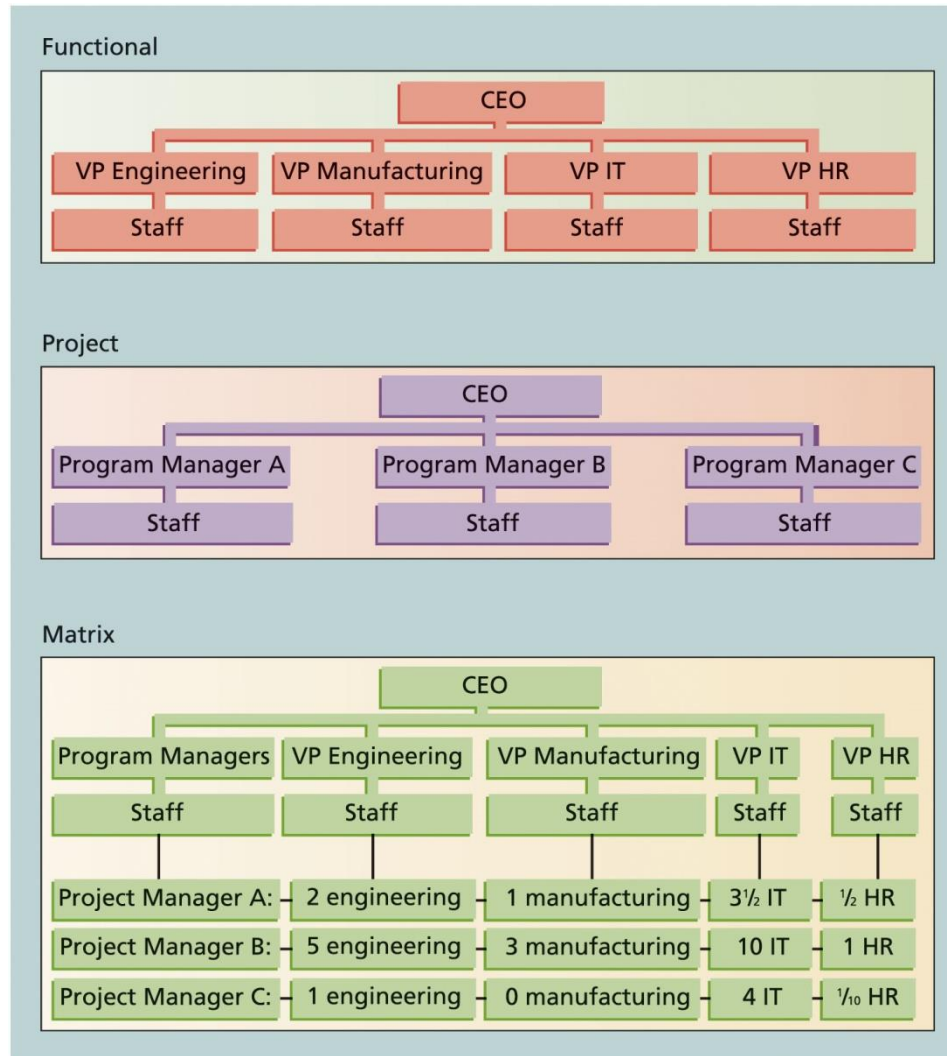
# What Went Wrong?

- In a paper titled “A Study in Project Failure,” two researchers examined the success and failure of 214 IT projects over an eight-year period in several European countries
- The researchers found that only **one in eight (12.5 percent)** **were considered successful** in terms of meeting **scope, time,** and **cost** goals
- The authors said that the **culture** within many organizations is often to blame
- Among other things, people often do not discuss important **leadership, stakeholder,** and **risk** management issues

# Organizational Structures (1 of 2)

- Three basic organizational structures
  - **Functional:** functional managers report to the CEO
  - **Project:** program managers report to the CEO
  - **Matrix:** middle ground between functional and project structures; personnel often **report to two or more bosses**; structure can be weak, balanced, or strong matrix

# Organizational Structures (2 of 2)



**FIGURE 2-3** Functional, project, and matrix organizational structures

# Organizational Culture (1 of 2)

- Organizational **culture** is a set of shared assumptions, values, and behaviors that characterize the functioning of an organization
- Many experts believe the underlying causes of many companies' **problems are not the structure or staff, but the culture**

# Organizational Culture (2 of 2)

- Ten characteristics of organizational culture:
  - Member identity\*
  - Group emphasis\*
  - People focus
  - Unit integration\*
  - Control
  - Risk tolerance\*
  - Reward criteria\*
  - Conflict tolerance\*
  - Means-ends orientation
  - Open-systems focus\*
- \*Project work is most successful in an organizational culture where these items are strong/high and other items are balanced.

# The Importance of Top Management Commitment (1 of 2)

- People in top management positions are key stakeholders in projects
- A very important factor in helping project managers successfully lead projects is the **level of commitment and support they receive from top management**
- Without top management commitment, many projects will fail.
- Some projects have a senior manager called a champion who acts as a key proponent for a project.

# The Importance of Top Management Commitment (2 of 2)

- How top management can help project managers
  - **Providing adequate resources**
  - **Approving** unique project **needs** in a timely manner
  - **Getting cooperation** from other parts of the organization
  - **Mentoring and coaching** on leadership issues



# The Need for Organizational Commitment to Information Technology

- If the organization has a negative **attitude** toward IT, it will be difficult for an IT project to succeed
- Having a **Chief Information Officer (CIO)** at a high level in the organization helps IT projects
- Assigning **non-IT people to IT projects** also encourage more commitment

# The Need for **Organizational Standards**

- **Standards and guidelines help project managers be more effective**
- Senior management can encourage
  - the use of standard forms and software for project management
  - the development and use of guidelines for writing project plans or providing status information
  - the creation of a project management office or center of excellence

# Project and Product Life Cycles

- It is good practice to **divide projects into several phases**
  - Because projects operate as part of a system and involve uncertainty
- **The same can be said for developing products**

# Project Life Cycle (1 of 2)

- A project life cycle is a collection of project phases that defines
  - what work will be performed in each phase
  - what deliverables will be produced and when
  - who is involved in each phase, and
  - how management will control and approve work produced in each phase
- A deliverable is a product or service produced or provided as part of a project

# Project Life Cycle (2 of 2)

- In **early phases** of a project life cycle
  - resource **needs** are usually **lowest**
  - the level of uncertainty (**risk**) is **highest**
  - project **stakeholders** have the **greatest opportunity** to influence the project
- In middle phases of a project life cycle
  - the **certainty of completing** a project improves
  - more resources are needed
- The final phase of a project life cycle focuses on
  - ensuring that project **requirements were met**
  - the sponsor **approves** completion of the project

# Product Life Cycles (1 of 3)

- Products also have life cycles
- The **Systems Development Life Cycle (SDLC)** is a framework for describing the phases of developing information systems
- Systems development projects can follow
  - Predictive life cycle
  - Iterative life cycle
  - Incremental life cycle
  - Adaptive life cycle
  - Hybrid life cycle

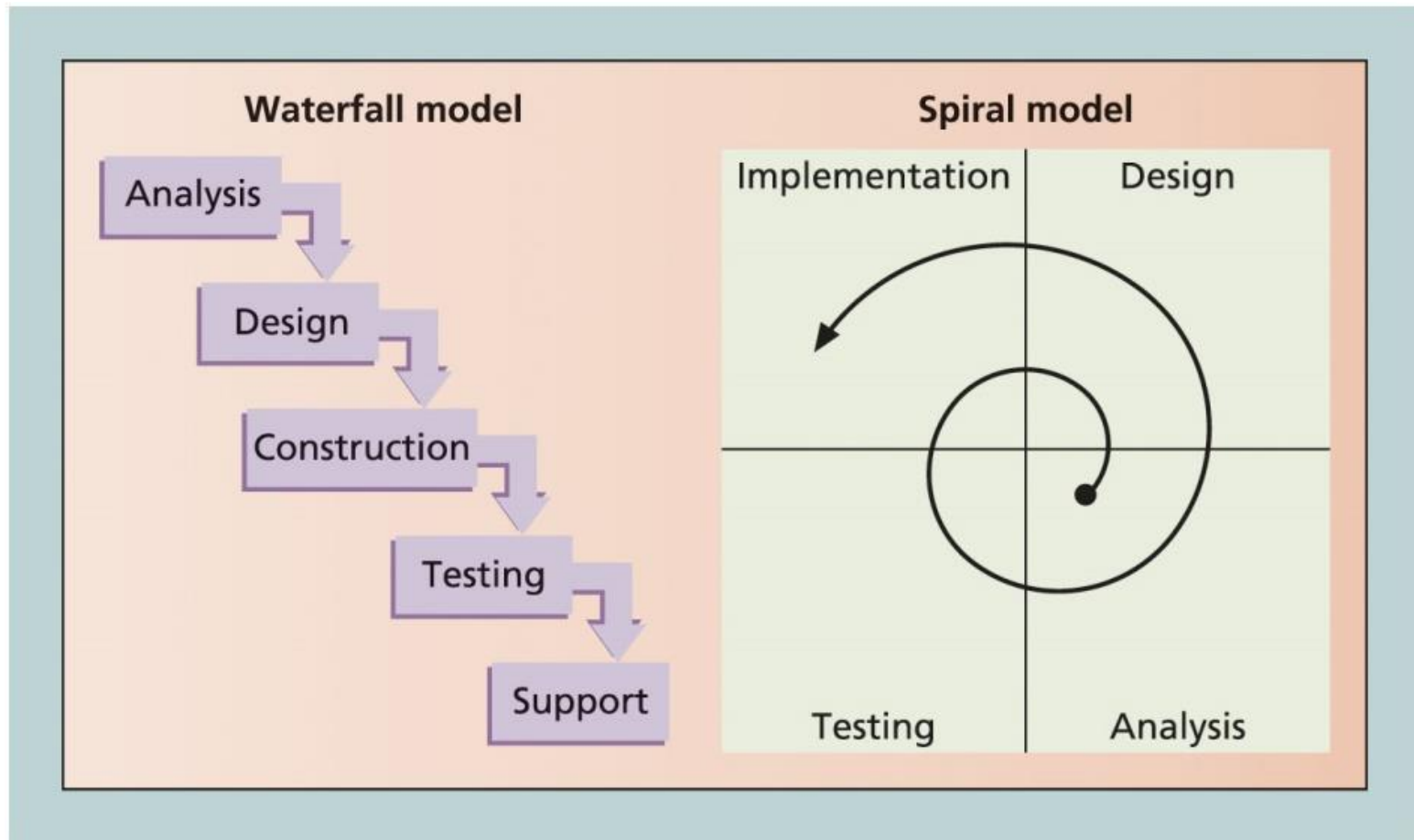
# Product Life Cycles (2 of 3)

- **Predictive Life Cycle Models**

- **Waterfall model:** has well-defined, linear stages of systems development and support
- **Spiral model:** shows that software is developed using an iterative or spiral approach rather than a linear approach
- **Prototyping model:** used for developing prototypes to clarify user requirements
- **Rapid Application Development (RAD) model:** used to produce systems quickly without sacrificing quality



# Product Life Cycles (3 of 3)



**FIGURE 2-4** Waterfall and spiral life cycle models

# The Importance of Project Phases and Management Reviews

- A project **should successfully pass through each of the project phases in order to continue** on to the next
- **Management reviews**, also called phase exits, phase gate reviews, or kill points, **should occur after each phase** to evaluate the project's progress, likely success, and continued compatibility with organizational goals
- It is **unwise to wait until the end of project or product phases to have management inputs**
  - Many projects are reviewed by management on a regular basis

# The Nature of IT Projects

- **IT projects can be very diverse** in terms of size, complexity, products produced, application area, and resource requirements
- The nature of software development projects is even more diverse than hardware-oriented projects
- **IT projects also support every possible industry** and business function

# Characteristics of IT Project Team Members

- IT project team members often have diverse backgrounds and skill sets
- Many companies purposely hire graduates with degrees in other fields such as business, mathematics, or the liberal arts to provide different perspectives on IT projects
- Some IT projects require the skills of people in just a few job functions
  - But some require inputs from many or all of them

# Diverse Technologies

- IT projects use diverse technologies that change rapidly
- Differences in technical knowledge can make communication between professionals challenging
- New technologies have also shortened the time frame many businesses have to develop, produce, and distribute new products and services

# Recent Trends Affecting Information Technology Project Management

- **Globalization**
- **Outsourcing:** Outsourcing is when an organization acquires goods and/or sources from an outside source. Offshoring is sometimes used to describe outsourcing from another country
- **Virtual teams:** A virtual team is a group of individuals who work across time and space using communication technologies
- **Agile** project management

# Globalization

- Issues
  - Communications
  - Trust
  - Common work practices
  - Tools
- Suggestions
  - Employ greater project discipline
  - Think globally but act locally
  - Consider collaboration over standardization
  - Keep project momentum going
  - Use newer tools and technology



# Outsourcing

- Organizations remain competitive by using outsourcing to their advantage, such as finding ways to reduce costs
- **Practice can be unpopular** on some countries
- Project managers should become more familiar with many global and procurement issues

# Virtual Teams (1 of 2)

- Advantages
  - Lowering costs because many virtual workers **do not require office space** or support beyond their home offices
  - Providing more expertise and flexibility or increasing competitiveness and responsiveness by having team members from across the globe working any time of day or night
  - **Improving the work/life balance for team members** by eliminating fixed office hours and the need to travel to work

# Virtual Teams (2 of 2)

- Disadvantages
  - Isolating team members
  - Increasing the potential for **communications problems**
  - Reducing the ability for team members to network and transfer information informally
  - **Increasing the dependence on technology to accomplish work**
- See text for a list of factors that help virtual teams succeed, including team processes, trust/relationships, leadership style, and team member selection

# Agile (1 of 2)

- Agile means being able to move quickly and easily, but some people feel that project management, as they have seen it used, does not allow people to work quickly or easily
- Early software development projects often used a **waterfall approach**
  - As technology and businesses became more complex, the approach was often difficult to use because **requirements were unknown or continuously changing**
- **Agile today means using an approach where requirements and solutions evolve through collaboration**

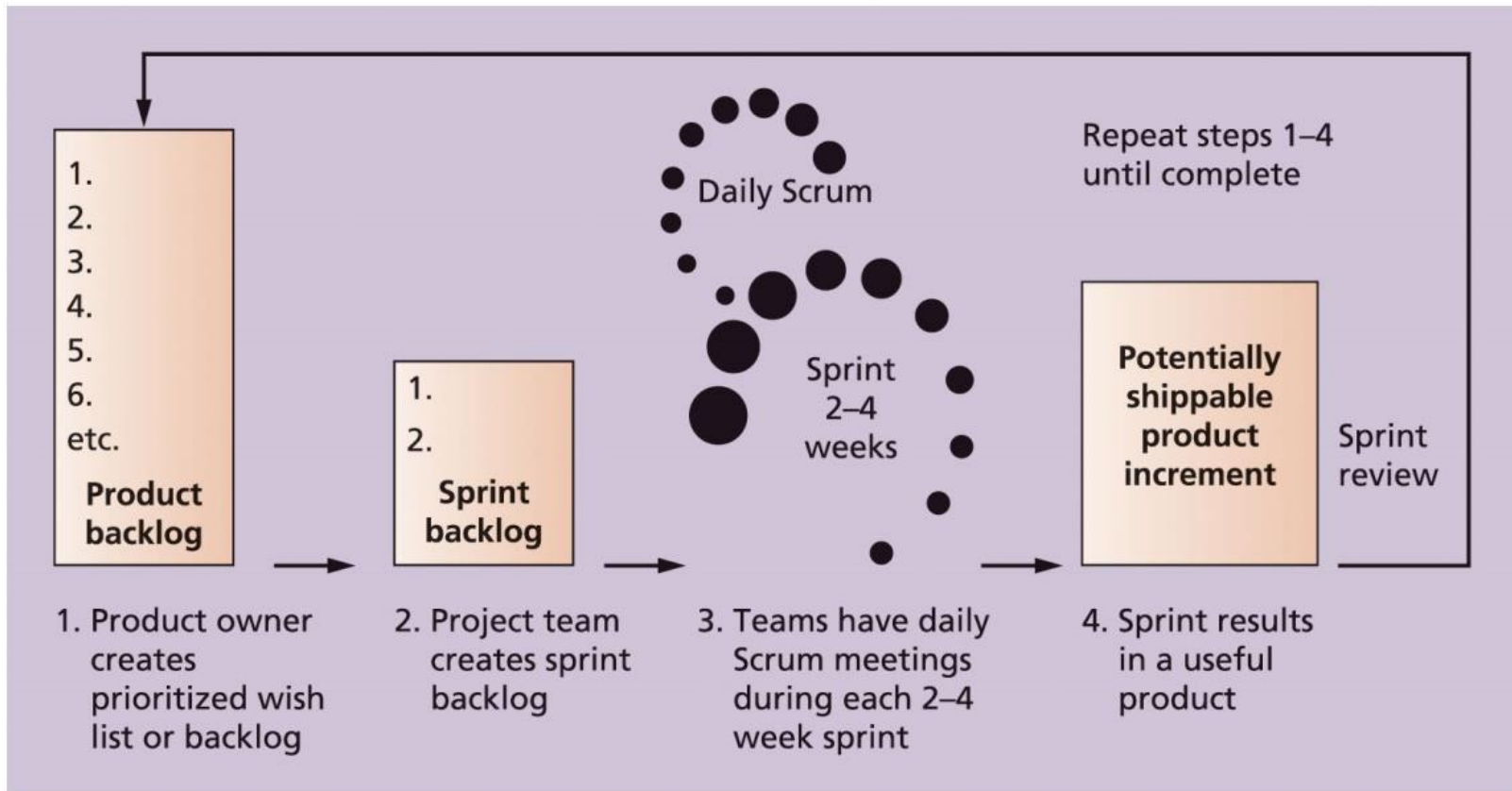
# Agile (2 of 2)

- Manifesto for Agile Software Development
  - In February 2001, a group of 17 people that called itself the Agile Alliance developed and agreed on the Manifesto for Agile Software Development, as follows:
  - “We are uncovering better ways of developing software by doing it and helping others do it. Through this work we have come to value:
    - Individuals and interactions over processes and tools
    - Working software over comprehensive documentation
    - Customer collaboration over contract negotiation
    - Responding to change over following a plan”\*
- \*[Agile Manifesto](#).

# Scrum (1 of 4)

- According to the Scrum Alliance, **Scrum is the leading agile development method for completing projects with a complex, innovative scope of work.**
- The term was coined in 1986 in a Harvard Business Review study that compared high-performing, cross-functional teams to the scrum formation used by rugby teams.

# Scrum (2 of 4)



**FIGURE 2-5** Scrum framework



# Scrum (3 of 4)

- **Kanban**

- Technique that can be used in conjunction with Scrum
- Developed in Japan by **Toyota** Motor Corporation
- Uses visual cues to guide workflow
- Kanban cards show new work, work in progress, and work completed

# Scrum (4 of 4)

- The **PMBOK® Guide describes best practices** for what should be done to manage projects.
- Agile is a methodology that describes how to manage projects.
- The Project Management Institute (PMI) recognized the increased interest in Agile, and introduced a new certification in 2011 called Agile Certified Practitioner (ACP).
- **Seasoned project managers understand that they have always had the option of customizing how they run projects, but that project management is not easy, even when using Agile.**

# Chapter Summary

- Project managers **need to take a systems approach** when working on projects
- Organizations have four **different frames**: structural, human resources, political, and symbolic
- The **structure and culture** of an organization have strong implications for project managers
- Projects should successfully **pass through each phase of the project life cycle**
- Project managers **need to consider several factors due to the unique context of information technology projects**
- **Recent trends** affecting IT project management include globalization, outsourcing, virtual teams, and agile project management